



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/GB99/03873  <b>(22) International Filing Date:</b> 19 November 1999 (19.11.99)  <b>(30) Priority Data:</b> 9825421.2 19 November 1998 (19.11.98) GB  <b>(71) Applicant (for all designated States except US):</b> ISIS INNO- VATION LIMITED [GB/GB]; Ewert House, Ewert Place, Summertown, Oxford OX2 7BZ (GB).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> WONG, Luet, Lok [GB/GB]; University of Oxford, Dept. of Chemistry, South Parks Road, Oxford OX1 3QR (GB); BELL, Stephen, Graham [GB/GB]; University of Oxford, Dept. of Chemistry, South Parks Road, Oxford OX1 3QR (GB). CARMICHAEL, Angus, Bishop [GB/GB]; University of Oxford, Dept. of Chemistry, South Parks Road, Oxford OX1 3QR (GB).  <b>(74) Agent:</b> ELLIS-JONES, Patrick, George, Armine; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5LX (GB).	<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished          upon receipt of that report.</i>	
<b>(54) Title:</b> PROCESS FOR OXIDISING TERPENES		
<b>(57) Abstract</b>  A process for oxidising a substrate which is an acyclic or cyclic terpene, or a cycloalkene; or a substituted derivative thereof, which process comprises oxidising said compound with a mutant haem-containing enzyme, the mutant comprising the substitution of an amino acid in the active site by an amino acid with a less polar side-chain. The enzyme is typically P450 <sub>cam</sub> or P450 <sub>BM-3</sub> . Cells and libraries of cells in which the process can be carried out or which can be used to select advantageous mutant enzymes are also provided.		